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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,132	08/01/2003	Cherng-Chyi Han	HT02-017	3111

7590 07/21/2005

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EXAMINER
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BLOUIN, MARK S

ART UNIT	PAPER NUMBER
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2653

DATE MAILED: 07/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center"><b>Office Action Summary</b></p>	<b>Application No.</b> 10/633,132	<b>Applicant(s)</b> HAN ET AL.	
	<b>Examiner</b> Mark Blouin	<b>Art Unit</b> 2653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                                               |                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                          | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/29/03</u> . | 6) <input type="checkbox"/> Other: ____                                                |

### Detailed Action

#### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 and 5 are rejected under 35 U.S.C. 102 (e) as being anticipated by Hsu et al (USPN 6,693,769).

3. Regarding Claims 1 and 5, Hsu et al shows (Figs. 10 and 11), an inductive-type magnetic write head with a two-element coil and reduced coil resistance comprising a lower magnetic pole (92) formed of magnetic material, a pole tip (202) formed of magnetic material on a front portion of the lower magnetic pole and extending vertically above the pole, a back-gap (204) element formed of magnetic material on a rear portion of the lower magnetic pole and extending vertically above the pole, an upper magnetic pole (232) formed of magnetic material and extending horizontally between the back-gap element and the pole tip, the upper pole having a rear portion contacting an upper surface of the back-gap element and a front portion extending over the pole tip and separated from the pole tip by a write gap layer (214), a dual element conducting coil (206,230) formed above the lower magnetic pole, between the pole tip and the back-gap element and below the write gap layer, the coil comprising two horizontal planar coil elements vertically disposed above each other and vertically separated from each other by an

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insulating patch layer (214) of minimal thickness and wherein the windings of the lower coil element have a greater cross-sectional area than the windings of the upper coil element to provide a reduced coil resistance.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-4,6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu et al (USPN 6,693,769) in view of Kamijima et al (USPN 6,525,901).

6. Regarding Claims 2-4,6, and 7, Hsu et al shows all the features described, *supra*, but does not show coil elements separated by an alumina patch layer of thickness between approximately 1000 and 3000 angstroms, wherein the height of the coil windings of the lower coil are between approximately 1.0 and 2.5 microns, and the width of both the first and second coil element windings is between approximately 0.5 and 2.0 microns.

Kamijima et al shows (Figures 2-6) coil elements separated by an alumina ( $\text{Al}_2\text{O}_3$ ) patch layer of thickness between approximately 1000 and 3000 angstroms (Column 6, lines 22-39 – general thickness is 3-20 $\mu\text{m}$  and the thickness of a coil is 2-5 $\mu\text{m}$ , so if a coil is 3 $\mu\text{m}$  thick and the insulation is 3.1 $\mu\text{m}$  thick, the difference is .1  $\mu\text{m}$  (1000 angstroms between the top of the bottom coil and the bottom of the top coil), wherein the height of the coil windings of the lower coil are between approximately 1.0 and 2.5 microns (Column 6, line 24), and the width of both the first

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and second coil element windings is between approximately 0.5 and 2.0 microns (Figure 6; W ranges from 0.5 to 3.0  $\mu\text{m}$ ).

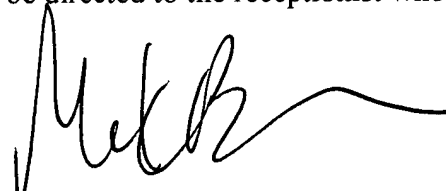
It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the coil arrangement in Hsu et al as taught by Kamijima et al. The rationale is as follows: One of ordinary skill in the art at the time the invention was made would have been motivated to use the coil arrangement in Hsu et al as taught by Kamijima et al in order to narrow track width without increasing electrical resistance and improving write head areal density.

### *Conclusion*

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Blouin whose telephone number is (571) 272-7583. The examiner can normally be reached M-F, 6:00 am – 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful the examiner's supervisor, William Korzuch can be reached at (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300 for regular and After Final communications.

Any inquiry of general nature or relating to the status of application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.



Mark Blouin  
Patent Examiner  
Art Unit 2653  
July 15, 2005

A. J. HEINZ  
PRIMARY EXAMINER  
GROUP ~~4200~~ A. U. 2653

